

We claim:

1. A method of increasing the total oil content in a plant organism or a tissue, organ, part, cell or propagation material thereof, comprising
 - a) the transgenic expression of a polypeptide SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6 in said plant organism or in a tissue, organ, part, cell or propagation material thereof, and
 - b) the selection of plant organisms in which - in contrast to or comparison with the starting organism - the total oil content in said plant organism or in a tissue, organ, part, cell or propagation material thereof is increased.
2. The method as claimed in claim 1, wherein the oil biosynthesis enhancing protein is encoded by a nucleic acid sequence selected from the group consisting of:
 - a) a nucleic acid sequence comprising a nucleotide sequence which is at least 60% identical to the nucleic acid sequence of SEQ ID NO : 1, SEQ ID NO : 3 or SEQ ID NO : 5;
 - b) a nucleic acid sequence comprising a fragment of at least 30 nucleotides of a nucleic acid sequence comprising the nucleotide sequence of SEQ ID NO : 1, SEQ ID NO : 3 or SEQ ID NO : 5;
 - c) a nucleic acid sequence which encodes a polypeptide comprising an amino acid sequence at least about 60% identical to the amino acid sequence of SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6 and
 - d) a nucleic acid sequence which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6 or wherein the fragment comprises at least 10 contiguous amino acid residues of the amino acid sequence of SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6,
3. A method as claimed in claim 1 or 2, wherein the plant is an oil crop.
4. A method as claimed in claim 1 or 2, wherein the total oil content in the seed of a plant is increased.

5. An expression cassette comprising in combination with a regulatory sequence a nucleic acid sequence selected from the group consisting of:
- a) a nucleic acid sequence comprising a nucleotide sequence which is at least 60% identical to the nucleotide sequence of SEQ ID NO : 1, SEQ ID NO : 3 or SEQ ID NO : 5,
 - b) a nucleic acid sequence comprising a fragment of at least 30 nucleotides of a nucleic acid sequence comprising the nucleotide sequence of SEQ ID NO : 1, SEQ ID NO : 3 or SEQ ID NO : 5,
 - c) a nucleic acid sequence which encodes a polypeptide comprising an amino acid sequence at least about 60% identical to the amino acid sequence of SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6, or
 - d) a nucleic acid sequence which encodes a fragment of a polypeptide comprising the amino acid sequence of SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6 wherein the fragment comprises at least 10 contiguous amino acid residues of the amino acid sequence of SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6
- wherein said regulatory sequence is capable of mediating expression of said nucleic acid sequence in a plant.
6. An expression cassette according to claim 5, wherein said nucleic acid sequence encodes a polypeptide comprising the amino acid sequence set forth in SEQ ID NO : 2, SEQ ID NO : 4 or SEQ ID NO : 6.
7. An expression cassette as claimed in claim 5 or 6, wherein the promoter is a seed-specific promoter.
8. A genetically modified plant organism or tissue, organ, part, cell or propagation material thereof, comprising a polypeptide as defined in SEQ ID NO : 2, SEQ ID NO 4 or SEQ ID NO 6 or an expression cassette as claimed in any of claims 5 to 7.

9. A genetically modified plant organism as claimed in claim 8, wherein the plant organism is selected from the group of the oil crops consisting of *Borvago officinalis*, *Brassica campestris*, *Brassica napus*, *Brassica rapa*, *Cannabis sativa*, *Carthamus tinctorius*, *Cocos nucifera*, *Crambe abyssinica*, *Cuphea species*, *Elaeis guinensis*, *Elaeis oleifera*, *Glycine max*, *Gossypium hirsutum*, *Gossypium barbadense*, *Gossypium herbaceum*, *Helianthus annuus*, *Linum usitatissimum*, *Oenothera biennis*, *Olea europaea*, *Oryza sativa*, *Ricinus communis*, *Sesamum indicum*, *Triticum species*, *Zea mays*, walnut and almond.
10. The use of a genetically modified plant organism or tissue, organ, part, cell or propagation material thereof as claimed in claim 8 or 9 for the production of oils, fats, free fatty acids or derivatives of the above.